UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

APR 11 2016

REPLY TO THE ATTENTION OF:

E-19J

Brian Elkington
U.S. Fish and Wildlife Service
5600 American Boulevard West
Bloomington, Minnesota 55437

RE: Supplemental Draft Environmental Impact Statement: Ballville Dam Project – Sandusky County, Ohio (CEQ# 20160043)

Dear Mr. Elkington:

The U.S. Environmental Protection Agency (EPA) has reviewed the U.S. Fish and Wildlife Services' (USFWS) February 2016 Supplemental Draft Environmental Impact Statement (SDEIS) for the Ballville Dam Project located in Sandusky County, Ohio. This letter provides our comments on the SDEIS, pursuant to the National Environmental Policy Act (NEPA), the Council on Environmental Quality's NEPA Implementing Regulations (40 CFR 1500-1508), and our NEPA review authority under Section 309 of the Clean Air Act.

EPA reviewed the original Draft EIS (DEIS) for this project and provided comments to USFWS on March 26, 2014. We rated the DEIS as **Environmental Concerns - Insufficient Information (EC-2)**. See the attached "*Summary of EPA Rating Definitions and Follow-Up Actions*" for more information. We also provided comments on the Final EIS (FEIS) on September 8, 2014. EPA's previous comments and primary recommendations have focused on wetland and water resource impacts, mitigation, water quality, endangered species, historic preservation, and sediment issues.

The FEIS selected Alternative 4 - Incremental Dam Removal with installation of an ice control structure (ICS) as the Proposed Action for providing fish passage upstream and downstream of the Ballville Dam location, restoring natural hydrologic and sediment transport regimes, and addressing dam safety and liability. The Proposed Action would be divided into three phases with each phase having multiple objectives for meeting dam removal goals. In summary, the phases are: 1) the initial notching of the Ballville Dam; 2) sediment stabilization, dam removal, and ice control structure construction; and 3) sea wall modification along the north bank of the river upstream of the dam removal, and restoration of the project area. Phase 3 would also include the demolition of any remnants of Tucker Dam[1], if necessary.

[1] The Tucker Dam was reportedly built between 1835 and 1858 and was a nine foot tall timber crib design that used water power to work a flour grist-mill. This dam and mill was reported to be operational into the early 1900's and was located within the current Ballville Dam impoundment.

The limited-scope SDEIS evaluates the environmental effects associated with new information compiled for the project regarding contaminant analysis of sediments located within the Ballville Dam's upstream impoundment on the Sandusky River. The potential impacts of the Proposed Action on downstream habitats due to sediment release is one of the concerns identified as a focus of the SDEIS. The Ballville Dam has altered natural hydrologic and sediment transport functions in the Sandusky River. Notably, the dam currently traps coarse sediment in the upper portion of the impoundment as water velocities are reduced and they are no longer carried downstream. The SDEIS builds on the previous environmental documents compiled for this project, and addresses sediment-related questions and concerns brought to light during the interim period of the publication of the project's Record of Decision (ROD) in October 2014 and the present. Additionally, the SDEIS discusses a new alternative, (Dam Removal with By-Pass Channel and Impoundment Excavation) that was created based on comments received during the FEIS comment period. This new alternative ultimately was not carried forward for further analysis in the SDEIS.

On July 7, 2015, the Sierra Club filed suit in District Court alleging that the City of Fremont (City), the USFWS, and the U.S. Army Corps of Engineers (USACE) (as the cooperating agency) failed to "*lawfully consider and mitigate the environmental harm that the release of the massive quantity of contaminated sediment that has grown behind the dam for over a century will cause downstream to the Sandusky River, Sandusky Bay and Lake Erie following the dam's removal in the manner approved in the EIS*" and, further, failed to "*lawfully consider reasonable alternatives to addressing this sediment in a more environmentally protective manner.*"

Concurrently, USACE determined that further testing of the sediments impounded by Ballville Dam would be required to complete the Clean Water Act Section 404 permitting process. USFWS determined that this additional sediment data would add significant new information that could inform their understanding of the impacts of the proposed alternative on the environment in the project area.

As such, USFWS worked closely with USACE, the Ohio Department of Natural Resources (ODNR), and the City to develop a plan to complete additional testing, reevaluate the potential impacts based on the analytical results, and incorporate this additional information into the decision making process through the completion of the SDEIS. In addition to the noted allegations, the suit detailed other concerns also related to sediment management and sediment impacts. These topics include questions regarding the estimate of total quantity of sediment impounded by Ballville Dam, the potential impacts of the proposed alternative on harmful algal blooms (HABs) in the Sandusky River and Lake Erie due to the proposed sediment release, the potential impacts of the proposed alternative on downstream habitats due to sediment release, the accuracy of cost estimates of sediment removal within the EIS, evaluation of a by-pass and excavation alternative provided in comments on the FEIS, and the potential for beneficial reuse of sediments impounded by Ballville Dam.

EPA rates the SDEIS as **Environmental Concerns - Insufficient Information (EC-2)**. This rating is based primarily on concerns relating to contaminants and nutrients from the SDEIS's sediment analysis. EPA recommends that the Supplemental Final EIS address the following comments, as follows.

SEDIMENT TESTING – NUTRIENTS

- The SDEIS ultimately concludes that the release of Ballville Dam's impounded sediments would likely not impact HABs downstream. Section 5.1.2 of the SDEIS (analysis of Environmental Consequences to water resources, including water chemistry, sediment quality, and sediment

quantity) relies on correspondence from Dr. Justin Chaffin (of Ohio State University's Franz Theodore Stone Laboratory) dated December 11, 2015, and specifically, on insights provided by him on HAB occurrence in western Lake Erie (WLE) as well as Sandusky Bay. Of note, Dr. Chaffin indicates the cyanobacteria community composition of Sandusky Bay is very different than WLE and is dominated by *Planktothrix spp.* Harmful algal blooms in Lake Erie can be attributed to six to seven species of cyanobacteria, including *Planktothrix spp.*, but *Planktothrix spp,* is of particular concern because of its abundance in recent years.

Recent work by Davis et al. 2015[2] indicated *Planktothrix spp.* bloom size and release of toxins increases with additions of nitrogen. Dr. Chaffin states in his December 11, 2015, letter that current Nitrogen to Phosphorus (N:P) ratios in "river sediments" are very low and, as such, will not stimulate cyanobacteria blooms. The SDEIS is unclear whether Dr. Chaffin considered N:P ratios in the sediment currently present 1) behind the dam within the reservoir; and 2) if different pathways of nitrogen versus phosphorus loss in reservoir sediments following drawdown were considered, possibly altering actual N:P ratios delivered to downstream waters. Specifically, if a greater proportion of nitrogen can be transported downstream during reservoir drawdown independent of sediment movement, will N:P ratios be greater than simply looking at recorded values for impounded sediment?

Finally, Davis et al. 2015 documented an increase in production of cyanobacteria toxins as nitrogen in the form of urea, NH_4, and NO_3 are added to Sandusky Bay cyanobacteria communities dominated by *Planktothrix spp.* The SDEIS is not clear if USFWS has considered that, while Sandusky Bay cyanobacteria community size may not increase significantly due to dam removal, there may be a change in cyanobacteria toxin production.

Recommendations: The SFEIS should provide additional information on the following questions/issues:

1. Clarification and additional information on whether or not Dr. Chaffin's analysis considered N:P ratios in the sediment currently present behind the dam within the reservoir;
2. Clarification and additional information on whether or not Dr. Chaffin's analysis considered different pathways of nitrogen versus phosphorus loss in reservoir sediments following drawdown, which could possibly alter actual N:P ratios delivered downstream and to receiving waterbodies;
3. A discussion and analysis of if a greater proportion of nitrogen can be transported downstream during reservoir drawdown independent of sediment movement, focusing on whether or not N:P ratios will be greater than simply looking at recorded values for the impounded sediment; and
4. A discussion and analysis of the possible effects of a potential change (increase) in cyanobacteria toxin production, based on the increase in production of cyanobacteria toxins as nitrogen in the form of urea, NH_4, and NO_3 are added to Sandusky Bay cyanobacteria communities dominated by *Planktothrix spp (*as documented in Davis et al. 2015).

[2] Davis et al. 2015 reference: http://pubs.acs.org/doi/ipdf/10.1021/acs.est.5b00799

SEDIMENT TESTING – CONTAMINANTS

- Based on the way in which the data is presented in the SDEIS, EPA has determined that there does not appear to be a significant threat for adverse impacts from metals, polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbon (PAHs), or pesticides. Even though some values are statistically higher above the dam compared to below the dam, all average values are below the Probable Effect Concentration (PEC) (*MacDonald et al. 2003*) and the Sediment Reference Value (*Ohio EPA 2010*). Section 4.1.2.1.4 of the SDEIS (September 2015 Sediment Sampling) references the sampling design and describes the collection of 10 sediment cores above the dam within the dam impoundment and three grab samples collected below the dam that were collected for chemical analyses.

  Recommendations: The SFEIS should include additional information as follows:

  1. The SFEIS should identify and describe which section of the sediment cores were used for comparison to below-dam samples, and describe why;
  2. The SFEIS should describe how all of the samples were prepped for analyses (i.e.; cores split, homogenized, etc.); and
  3. The SFEIS should identify and describe contaminant results from the 10 sediment core samples taken from the impoundment, and describe which sediment core sections are likely to be mobilized based on their location and depth.

EPA appreciates the opportunity to review this SDEIS. We are available to discuss our comments with you in further detail if requested. If you have any questions or comments regarding the content of this letter, please contact EPA's lead NEPA reviewer for this project, Ms. Liz Pelloso, PWS, at 312-886-7425 or via email at pelloso.elizabeth@epa.gov.

Sincerely,

Kenneth A. Westlake, Chief
NEPA Implementation Section
Office of Enforcement and Compliance Assurance

Enclosure: Summary of Rating Definitions

cc with enclosure (via email):
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SUMMARY OF RATING DEFINITIONS AND FOLLOW UP ACTION

Environmental Impact of the Action

LO-Lack of Objections
The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

EC-Environmental Concerns
The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impacts. EPA would like to work with the lead agency to reduce these impacts.

EO-Environmental Objections
The EPA review has identified significant environmental impacts that must be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

EU-Environmentally Unsatisfactory
The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the CEQ.

Adequacy of the Impact Statement

Category 1-Adequate
The EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alterative and those of the alternatives reasonably available to the project or action. No further analysis or data collecting is necessary, but the reviewer may suggest the addition of clarifying language or information.

Category 2-Insufficient Information
The draft EIS does not contain sufficient information for the EPA to fully assess the environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

Category 3-Inadequate
EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

*From EPA Manual 1640 Policy and Procedures for the Review of the Federal Actions Impacting the Environment